

ATTACHMENT 1

881 Hillside French Drain Construction Issues /
Summary of August 13, 1991 Meeting

Background

The Operable Unit 1 (OU1) Interim Remedial Action (IRA) had two goals stipulated by the Environmental Protection Agency (EPA) in numerous letters and comments: to reduce existing contamination within the 881 Hillside area to within acceptable limits, and to prevent the release and migration of alluvial groundwater contamination from the 881 Hillside Area to the Woman Creek drainage and subsequently to Standley Lake, a public drinking water supply. The treatment of waters from Individual Hazardous Substance Site (IHSS) 119.1 and the footing drains from Building 881 address the first goal. The French Drain is designed to address the second goal.

The French Drain, as a remedy, has been review at least 5 times by the EPA and the Colorado Department of Health (CDH) since in August of 1987. It has been through public comment and has been finalized twice, once as the remedy in the 1988 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigation/Feasibility Study (RI/FS) prior to the Interagency Agreement and once after in the form of an IRA in 1991. An Environmental Assessment (EA) identifying the French Drain as the remedy was reviewed by EH-25 and a Finding of No Significant Impact (FONSI) was sent to EM-1 with copy to DOE Rocky Flats on January 10, 1990.

Chronology

EM-45 began working informally on French Drain concerns with the staff at DOE Rocky Flats in early June of this year.

A May 24, 1991, fact sheet from Rocky Flats to EH identified concerns that might effect the Environmental Assessment submitted in January of this year.

A French Drain fact finding trip was conducted by EM-45 during the week of June 24, 1991.

A draft issue paper was delivered to DOE Rocky Flats on June 27, 1991, with the formal issue paper being transmitted to the DOE Rocky Flats Field Office on July 9, 1991.

Glen Sjoblom (EM-1) identified a concern with the French Drain in a letter describing his June 25, 1991, trip to Rocky Flats.

DOE Rocky Flats prepared a draft response to the EM-45 issue paper and delivered them at a meeting held on July 28, 1991.

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ADMIN RECORD

A-DU01-000251

Discussions were held between EM-45 and the Rocky Flats Director of Environmental Management on August 1, 1991, setting the August 13, 1991, meeting date for detailed discussion of the issues.

The August 13, 1991, meeting was held to discuss the issues, and a revised draft response to the EM-45 issue paper was provided by Rocky Flats.

Summary of Issues Discussed in the Meeting of August 13, 1991

Issues discussed concerning the selection of the French Drain were focused on the rationale for a French Drain, the potential for negative impact to the environment by the construction of the Drain and the effectiveness of the Drain in containing contaminants.

- Discussion of Rationale for Selection of the French Drain

The issues questioning the rationale for the selecting the French Drain resulted from the analysis of well log data that indicate the contaminants are concentrated in two areas, in Individual Hazardous Substance Site (IHSS) 119.1 and at the base of Building 881. In addition, current characterization indicates that the contamination has travel only 100 to 200 feet in twenty years.

Incomplete characterization allows for no way of assuring the public and the regulators that these are the only plumes. While analysis indicates that it may be some time before the French Drain functions as a remedial tool to collect contaminated groundwater, it will eventually serve to protect Woman Creek from migrating contaminants and provide peace-of-mind to the regulators and the public who desire this type of barrier between 881 Hillside and their drinking water supply.

Because the goal of the French Drain is to protect Woman Creek from migration of groundwater from the 881 Hillside, all alternatives need be of a barrier type. They include a grout wall in combination with a well field to collect the accumulated water or a well field to produce a hydrological barrier. Due to low hydraulic conductivities on the hillside, there are questions as to the ability to create an effective zone of influence in wells to establish a hydrological barrier, without an excessive number of closely spaced wells.

In discussions of alternatives to the French Drain it became obvious that none would meet the goal of preventing the release and migration of alluvial groundwater contamination from the 881 Hillside Area with any greater degree of certainty than the French Drain. In addition it is felt that

the public will see the completion of the OUI IRA as a positive step and the goodwill built can be utilized in dealing with issues that are on the horizon.

- **Cost of Utilization of an Alternative to the French Drain**

The construction and operational costs of alternatives to prevent the release and migration of alluvial groundwater contamination from the 881 Hillside area to the Woman Creek drainage and subsequently to the Standley Lake were estimated to be roughly comparable with the French Drain.

- **Discussion of Potential for Negative Environmental Impact**

The issue of negative impact to the environment resulted from the apparent need to violate the integrity of the South Interceptor Ditch (SID) as a result of French Drain construction. The SID was installed to prevent OUI surface water from reaching Woman Creek. If the SID had been breached, sediment loading of Woman Creek from the excavated areas would probably have occurred.

EG&G stated that efforts would be made to alleviate any need to breach the SID. EM-45 will be directing DOE Rocky Flats to ensure that the downhill point of excavation shall come no closer than 20 feet from the uphill edge of the SID. Additionally, no stockpiling of soil, vehicular traffic, or other construction activities in or near the SID shall be allowed.

- **Discussions of the Effectiveness of the French Drain**

The issue of the effectiveness of the French Drain involved slow movement of the known contaminants (5 to 10 ft/yr) and the ability to key the bottom of the French Drain to bedrock of sufficiently low permeability to ensure effectiveness.

The speed of the flow of contaminants is such that they should not be expected to reach the French Drain for a minimum of 6 years. However, the goal of the French Drain is only to protect Woman Creek and ultimately Standley Lake from the potential of contaminant spread from the 881 Hillside Area. The goal of the other two actions included in the IRA are to reduce the levels of the known contaminant areas. In addition it expected that the French Drain in combination with some type of soil flushing will be part of the final remedy.

Essential to the effectiveness of the French Drain in capturing the plume is its ability to be keyed to a bedrock of sufficiently low permeability to compel groundwater to enter the collection area of the Drain. The Geotechnical Investigation report prepared by EG&G for DOE Rocky Flats

indicated that there was a good chance that the bedrock would be fractured. EG&G stated its intent to pressure grout any area where fracturing was encountered. EM-45 will be directing DOE Rocky Flats to ensure that adequate protocol is developed to determine when pressure grouting is needed.

- **Discussion of Pro-active Measures to Address Known Sources**

It was noted there are two sources that should be addressed. EG&G officials stated they had intended to pump an existing well in IHSS 119.1 and to treat the effluent from the Building 881 footing drain. EM-45 will be directing DOE Rocky Flats to ensure that the known plumes are addressed in a pro-active manner before their movement through pumping of contaminated groundwater and possible excavation of soils.

- **Effects on the Approved EA and Finding Of No Significant Impact**

If the requirements noted above are adhered to, it is the position of Rocky Flats Office that the currently approved version of the Environmental Assessment (EA) adequately addresses this action and no revision to the EA will be required.

Recommendation

It is recommended that the French Drain be constructed with the modifications discussed above and specified in the August ??, 1991, memorandum from D. Simonson to R. Lightner.